

**ABSTRACT OF THE DISCLOSURE**

The output buffer of the present invention comprises a pull up circuit and a pull down circuit. The pull up  
5 circuit is coupled between a first power line and a pad. The pull down circuit coupled between a second power line and the pad is comprised of a resistor, a diode and an electrostatic discharge protection component. The resistor  
10 deposited on the substrate of a first conductivity type is comprised of a well region of a second conductivity type and has a first end and a second end. The first end is a forth doped region of the second conductivity type and coupled to the pad. The diode is formed in the well  
15 region, construct by the PN junction formed between a first doped region of the first conductivity type and the well region. The electrostatic discharge component is coupled between the second end and the second power line. The first doped region is electrically floated in the well  
20 regions. Because the first doped region and the first end are not connected directly, there is no latch-up issue occurring in normal circuit operations. During an electrostatic discharge event, the first end is instantaneously connected to the first doped region which  
25 will help to boost the turn-on of the electrostatic discharge circuit, and further enhance the electrostatic protection effect.